CLAIMS

What is claimed is:

1. A method for fabricating a bipolar transistor comprising:

providing a semiconductor substrate having formed therein:

an intrinsic base region of a first polarity which includes a surface of the semiconductor substrate;

an extrinsic base region of the first polarity formed adjoining the intrinsic base region; and

a collector region of a second polarity opposite the first polarity formed within the semiconductor substrate and beneath the intrinsic base region;

forming a polysilicon emitter layer upon the intrinsic base region and separated from the extrinsic base region;

implanting first a portion of the intrinsic base region interposed between the extrinsic base region and the polysilicon emitter layer with an amorphizing non-active dopant; and

implanting second the polysilicon emitter layer with an active dopant to form a doped polysilicon emitter layer.

2. The method of claim 1 wherein the first polarity is an N polarity.

3. The method of claim 1 wherein the first polarity is a P polarity.

4. The method of claim 1 wherein the amorphizing non-active dopant is provided at an energy of from about 60 to about 80 kev and a dose of from about 1E13 to about 1E15 dopant atoms per square centimeter.

5. The method of claim 1 wherein the amorphizing non-active dopant is an argon dopant.

6. The method of claim 1 wherein the amorphizing non-active dopant is a silicon dopant.

7. The method of claim 1 wherein the portion of the intrinsic base region interposed between the extrinsic base region and the polysilicon emitter layer is masked when implanting the polysilicon emitter layer with the active dopant.

8. A method for fabricating a bipolar transistor comprising:

providing a semiconductor substrate having formed therein:

an intrinsic base region of a first polarity which includes a surface of the semiconductor substrate;

an extrinsic base region of the first polarity formed adjoining the intrinsic base region; and

a collector region of a second polarity opposite the first polarity formed within the semiconductor substrate and beneath the intrinsic base region;

forming a polysilicon emitter layer upon the intrinsic base region and separated from the extrinsic base region;

implanting first a portion of the intrinsic base region interposed between the extrinsic base region and the polysilicon emitter layer with an amorphizing non-active dopant;

implanting second the polysilicon emitter layer with an active dopant to form a doped polysilicon emitter layer; and

thermally annealing the semiconductor substrate.

9. The method of claim 8 wherein the first polarity is an N polarity.

10. The method of claim 8 wherein the first polarity is a P polarity.

11. The method of claim 8 wherein the amorphizing non-active dopant is provided at an energy of from about 60 to about 80 kev and a dose of from about 1E13 to about 1E15 dopant atoms per square centimeter.

12. The method of claim 8 wherein the amorphizing non-active dopant is an argon dopant.

13. The method of claim 8 wherein the amorphizing non-active dopant is a silicon dopant.

14. The method of claim 8 wherein the portion of the intrinsic base region interposed between the extrinsic base region and the polysilicon emitter layer is masked when implanting the polysilicon emitter layer with the active dopant.

15. A method for fabricating a bipolar transistor comprising:

providing a semiconductor substrate having formed therein:

an intrinsic base region of a first polarity which includes a surface of the semiconductor substrate;

an extrinsic base region of the first polarity formed adjoining the intrinsic base region; and

a collector region of a second polarity opposite the first polarity formed within the semiconductor substrate and beneath the intrinsic base region;

forming a polysilicon emitter layer upon the intrinsic base region and separated from the extrinsic base region;

implanting first the polysilicon emitter layer, the extrinsic base region and a portion of the intrinsic base region interposed between the extrinsic base region and the polysilicon emitter layer with an amorphizing non-active dopant;

masking the portion of the intrinsic base region interposed between the extrinsic base region and the polysilicon emitter layer; and

implanting second the polysilicon emitter layer with an active dopant to form a doped polysilicon emitter layer.

16. The method of claim 15 wherein the first polarity is an N polarity.

17. The method of claim 15 wherein the first polarity is a P polarity.

18. The method of claim 15 wherein the amorphizing non-active dopant is provided at an energy of from about 60 to about 80 kev and a dose of from about 1E13 to about 1E15 dopant atoms per square centimeter.

19. The method of claim 15 wherein the amorphizing non-active dopant is an argon dopant.

20. The method of claim 15 wherein the amorphizing non-active dopant is a silicon dopant.